

~~compounds composing the second sub-array each have at least one common structural diversity element, and wherein the compounds composing each sub-array differ from one another by [either zero or] one change in a [single] structural diversity element.~~

2. (amended) The array of Claim 1, wherein each [molecular construct] compound composing the array is unique.

3. (amended) The array of Claim 1, wherein each [molecular construct] compound composing the array is the product of a solution-phase reaction.

4. (amended) The array of Claim 1 [further] comprising at least three [one] sub-arrays, wherein the compounds composing each sub-array differ from one another by [either zero or] one change in a [single] structural diversity element.

*A2 cont*

5. (amended) The array of Claim 1, wherein each [molecular construct] compound is the product of a condensation reaction having at least two components, the first component comprising a first same reactive group and a different first structural diversity element and the second component comprising a second same reactive group and a second structural diversity element, said condensation reaction being carried out under conditions wherein the first and second reactive groups react to form the [molecular construct] compound.

6. (amended) The array of Claim 1, wherein each [molecular construct] compound is the product of a condensation reaction having at least three components, the first component comprising a first same reactive group and a different first structural diversity element, the second component comprising a second same reactive group and a second structural diversity element and the third component comprising a third same reactive group and a third structural

*A2 cont*

diversity element, said condensation reaction being carried out under conditions wherein the first, second and third reactive groups react to form the [molecular construct] compound.

*A3*

9. (amended) The array of Claim 8 wherein the compounds composing each sub-array differ from one another by [either zero or] one change in a [single] structural diversity element.

10. (amended) A method of making a logically-ordered, spatially-addressable array of compounds having a same common linear, branched or cyclic molecular core structure comprising at least three atoms of carbon, nitrogen, oxygen, phosphorus or sulfur and [n variable] at least two structural diversity elements, said array comprising at least a first sub-array and a second sub-array, wherein the compounds composing the first sub-array each have at least one common structural diversity element and the compounds composing the second sub-array each have at least one common structural diversity element, said method comprising the steps of:

(a) providing a plurality of reaction vessels organized into [n] the first and second sub-arrays;

(b) adding reactants to each of the reaction vessels in a manner such that when reacted, the reactants form the compounds of the array, and such that the compounds composing each sub-array differ from one another by [either zero or] one change in a [single] structural diversity element; and

(c) reacting the contents of each reaction vessel under appropriate conditions to form the compounds of the sub-arrays in the logically-ordered array.

*A4 Sub 30*

12. (amended) The method of Claim 10 or 11 further